

February 2010

Curriculum Vitae (with attached appendices)

Kevin G. Pinney

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Department of Chemistry and Biochemistry
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Citizenship: United States of America

Educational Background:

1993-1990	National Institutes of Health Postdoctoral Fellowship, Synthetic Organic Chemistry, University of South Carolina
1984-1990	Ph.D., Organic Chemistry, University of Illinois, Urbana, Illinois (August, 1990)
1983-1985	B.S., Chemical Engineering, University of Illinois, Urbana, IL (GPA 4.9/5.0)
1980-1983	B.A., Chemistry, Ohio Wesleyan University Magna Cum Laude (GPA 4.7/5.0) (degree awarded in 1984)

Employment Data:

2005-present	Professor of Chemistry -- Baylor University
2000-2005	Associate Professor of Chemistry -- Baylor University
1999-present	Member (co-founder) - The Center for Drug Discovery, Baylor University, (1999-present)
1993-present	Member - Institute of Biomedical Studies, Baylor University and Baylor Hospital, (1993-present)
1993-2000	Assistant Professor of Chemistry -- Baylor University (Tenure Granted, Spring 1999)
1990-1993	NIH Postdoctoral Research Associate with Professor James A. Marshall, University of South Carolina, Columbia, South Carolina.
1984-1990	Research Assistant, University of Illinois. Thesis work under the direction of Professor John A. Katzenellenbogen. Title of Ph.D. dissertation: "Design, Synthesis, and Biochemical Evaluation of Novel Photoaffinity Labeling Reagents for the Estrogen and Progesterone Receptors."

- 1985-1986 Head Teaching Assistant, organic chemistry,
University of Illinois.
- 1983-85 Teaching Assistant, general and organic
chemistry, University of Illinois.
- Summer 1984 Physical Scientist, National Oceanic and
Atmospheric Administration, Department of
Commerce, Washington, D.C.
- Summer 1983 Lab Technician, Cardox Corporation,
Countryside, IL.
- 1982-83 Teaching Assistant, Ohio Wesleyan University,
Delaware, Ohio.
- Summer 1982 Research Assistant, Ohio Wesleyan University.
Under the direction of Dr. Richard A. Amos,
polymeric triphenylphosphine of various
crosslinkings and phosphine loading was
prepared and successfully utilized in an effort
to develop novel methods for macrolide synthesis.

Consultancy:

Consultant for Oxigene, Inc. (Waltham, MA, South San Francisco, CA, Oxford, UK), 1999-present.

Honors Awards, and Recognition:

Honored to learn (through a letter from Dr. James Milne, Elsevier Ltd, Oxford, UK, dated 23rd April 2007) that our publication from 2006 on mono-nitrogen-substituted combretastatins in *Bioorganic and Medicinal Chemistry (BMC)* was among the top 25 most downloaded (through science direct) articles from that journal for the calendar year of 2006.

Recipient of The Cornelia Marschall Smith Professor of the Year Award, Baylor University, 2006 (presented April 19, 2006)

Recognition by Phi Beta Kappa (two students)(Fall 2003)

Outstanding Faculty Award for Scholarship for the College of Arts and Sciences (2003)

Mortar Board Circle of Achievement Award (Fall 2002)

Recognition by Phi Beta Kappa (Fall 2002)

Recognition as one of approx. eight "Favorite Professors" (Baylor Women's Soccer Team, Fall 2002)

Baylor University Full Sabbatical (eight months) awarded (January - August, 2002)

Bioorganic / Natural Products Study Section, *Ad Hoc Member (by invitation)* National Institutes of Health, (Fall 2002)

Mortar Board, Circle of Achievement Award, Baylor University, 1996
Faculty Research Award (\$50,000+ Club), Baylor University, 1996
Young Investigator Award, Baylor University, 1994
National Institutes of Health Postdoctoral Fellowship, 1990-1993.
R. C. Fuson Travel Award Grant, University of Illinois, 1989.
(Fuson Award for Excellence in Organic Research)
Graduate College Travel Support Grant, University of Illinois, 1989.
Graduate Fellowship in Chemistry, University of Illinois, 1985.
Achievement Scholar, Ohio Wesleyan University, 1980-83
University Scholar, Ohio Wesleyan University, 1980-83.
Analytical Chemistry Prize, Ohio Wesleyan University, 1983.
Research Corp. Summer Fellowship, Ohio Wesleyan University, 1982.
Lubrizol Corporation Award, Ohio Wesleyan University, 1981.

Award Nominations (other) (Year 2002)

- One of approx. ten finalists for The Collins Award (did not win the award)
- Nominated by The College of Arts & Sciences for a Carnegie Teaching Award (did not win the award)

Award Nominations (other) (Year 2003)

- One of approx. ten finalists for The Collins Award (did not win the award)
- Nominated for the Cornelia Marschall Smith Professor of the Year Award (did not win the award)

Award Nominations (other) (Year 2004)

- Nominated for the Cornelia Marschall Smith Professor of the Year Award (did not win the award)

Research Program Statement

A primary focus of the research efforts of my group lies in the total synthesis of structurally challenging and biologically relevant and interesting natural and non-natural products. Specifically, we have a special interest in the design, synthesis, and biochemical evaluation of anti-tumor, anti-mitotic agents that mediate their primary biological activity through a direct binding interaction with tubulin. Additional projects include the discovery and development of new serotonin re-uptake inhibitors, new synthetic methodology for the preparation of conjugated dienes with absolute stereocontrol, and compounds that bind to cruzain and the cathepsins.

Areas of Research Emphasis and Expertise

- 1) Molecular Recognition for Protein and Enzyme Binding Sites.
- 2) Discovery of Improved Vascular Disrupting Agents for Cancer Chemotherapy

- 3) Design and Synthesis of New Anti-Tumor, Inhibitors of Tubulin Assembly (Polymerization)
- 4) New Drug Development for the Treatment of Chagas' Disease.
- 5) Design and Synthesis of Novel Serotonin Re-uptake Inhibitors.
- 6) Development of New Synthetic Methodology for the Preparation of Conjugated Dienes with Absolute Stereocontrol.
- 7) Inhibitors of Cathepsin L to Potentially Limit Cancer Metastasis

Publications:

Twenty-seven (27) peer reviewed publications – either published or accepted for publication -- (including two book chapters) from work carried out at Baylor University (1993-present), eight (8) peer reviewed publications from work carried out prior to beginning at Baylor University in 1993, and several non-peer reviewed publications.

(See Appendix A --Publication Section-- for complete details)

Patents Issued and Patents Pending

A large number of patent applications (both US and International) have been filed – all directly resulting from work carried out at Baylor University. To date, at least sixteen (16) patents (US and/or International) have issued, and over twenty (20) applications are either still pending, or allowed (and will issue soon). Some of these applications are the same (just submitted in separate countries) --- collectively, the entire patent portfolio represents approximately fifteen (15) separate and distinct patent applications.

(See Appendix B --Patent Section -- for partial details)

Publications (Invited – not peer-reviewed)

(See Appendix A --Publication Section-- for complete details)

Publication (Educational -- Teaching)

(See Appendix A --Publication Section-- for complete details)

Abstracts of Presentations at Scientific Meetings by Kevin G. Pinney (and/or his students):

A total of approximately 55 presentations at National and/or Regional meetings, 89 presentations at local meetings, and 62 invited presentations have been made between the period of 1993-2009 (by Kevin Pinney and/or his students) based on work carried out at Baylor University. In addition, several presentations were made during the years prior to Baylor University.

(List of Meeting Presentations Available Upon Request)

Invited Presentations:

Approximately 62 invited presentations have been given to date based on work carried out at Baylor University.

(List of Meeting Presentations Available Upon Request)

High School Summer Science Research Program (HSSSRP)

This program involves bringing gifted high school students to Baylor University for the summer and giving them hands-on experience in areas of interest and potential career emphasis to them. (mentored two students (also served on selection com.), summer 2009). Michelle Suh and Ashley Newton (co-mentors Kevin G. Pinney and Pinney Group graduate students Benson Nguyen and Justin Tidmore) gave individual research presentations at the closing symposium for the High School Summer Science Research Program (HSSSRP). [Kevin G. Pinney has mentored numerous other summer HS students in previous years]

Cancer Research Featured on Local Television and Newspaper

The collective research of six faculty members and numerous graduate and undergraduate students, along with postdoctoral research associates and research technicians in the area of vascular targeting for cancer chemotherapy was featured on a short segment which aired on the KWTX (channel 10) local evening news (6 and 10 p.m.) on Thursday February 28, 2002. The segment also appeared on the Friday March 1, 2002, 6 am news telecast. Drs. Kevin G. Pinney and Bob Kane were interviewed for the story along with graduate student Tori Strong and postdoctoral research associate Dr. Vani Mocharla. Others, including Dr. Mary Lynn Trawick, were interviewed here on campus but not shown in the segment due to time-constraint necessary editing by the television station.

A short segment on Dr. Pinney's research was filmed and aired on "HealthBeat" (reported by Sonia Koo) on local KXXV (ABC) on September 19, 2002.

A brief article on Dr. Pinney's research appeared in The Waco Tribune Herald entitled: "The Chemistry of Healing" (7/20/02)

A "commercial" on The Center for Drug Discovery was filmed by local KWBU (PBS) in the fall of 2002 and now airs on local television.

A short segment on the discovery and development of Oxi-8007 aired on KWTX (channel 10) local evening news in early May 2003.

A short segment on the current research efforts in the Pinney Research Group aired on the KWTX (channel 10) local evening news on Friday September 24, 2004 in conjunction with the dedication of the Baylor Sciences Building.

Dr. Pinney was invited to participate in a panel discussion which was included in a 30 minute segment aired by KCEN (local NBC – Channel 6) entitled: "Coping with Cancer." (Friday September 24, 2004)

INVENTOR SPOTLIGHT

Dr. Pinney's research activities (including patent productivity) were featured in an article written for the *Innovation Law News* (Vol. 11, Issue 1, Spring 2001) that is a publication of Head, Johnson & Kachigian (Patent, Trademark & Copyright Law). The article was written by Daniel S. Hodgins, Ph.D., J.D.

Science and Technology Congressional Visits Day

Dr. Kevin G. Pinney was invited by the American Chemical Society (ACS) to be one of ten or twelve persons selected nationally to represent the ACS at the 7th annual Science and Technology Congressional Visits Day on March 5th and 6th (2002) in Washington, D.C. This event was organized by a coalition of more than 20 scientific organizations dedicated to strengthening federal investment in research and development. There were over 200 scientists in Washington D.C. for the event representing 20 different organizations. The event's message focused on the theme of --- "federally funded research promotes security, prosperity, and innovation." The event included briefings by administration and congressional officials, a reception honoring House Science Committee Chairman Sherwood Boehlert, and visits to the offices of Representatives and Senators. Dr. Pinney met with Representative Chet Edwards and two of his staff members, and a staff member from Senator Kay Bailey Hutchison's office, and two staff members from Senator Mary Landrieu's office.

PINNEY RESEARCH GROUP (2009)

During the course of the 2009 Academic Year, the Pinney Group typically included approximately twenty members (an average over the course of the year of six to nine graduate students, five to ten undergraduates, three to four postdoctoral research associates, one part-time administrative associate, and two summer high school students).

Honors Students

Mentored approximately 23 Honors Students in the Honors Readings I (HON 3100) and/or Honors Readings II (HON 3101) Courses in the years 2002-2009 alone, in addition to numerous students in other years.

Senior/Honors Theses Completed

Christopher J. Jelinek May 2002, Baylor University, Synthesis and Biological Evaluation of Dihydronaphthalene-Based Vascular Targeting Agents and Related Analogs Reminiscent of the Combretastatin Family of Natural Products.

Jennifer W. Nguyen May 2003, Baylor University, Synthesis of Dihydronaphthalene Analogs as Potential Vascular Targeting Agents and the Economic Relationship of Research and Development to the Pharmaceutical Industry.

Jonathan F. Arambula May 2003, Baylor University, Synthesis and Biological Evaluation of Indole Based Analogs of Combretastatin A-4 as Vascular Targeting Agents by Means of Tubulin Inhibition.

Chevelle Brudey, December 2003, Baylor University, Attempted Synthesis of an Indole Prodrug with Structural Similarities to Combretastatin A-4.

Michael Scott Stewart, May 2004, Baylor University, Synthesis of Bivalent Fluoxetine Homologues as Potential Serotonin Selective Reuptake Inhibitors. (co-mentor Graciela Miranda)

Delip Vikram Patel, May 2004, Baylor University, Threonineamide Prodrug Derivatives as Potential Vascular Targeting Agents. (co-mentor Rogelio Siles)

Mathew Prashanth Francis, August 2004, Baylor University, The title of his thesis is: Bifunctional Anti-Cancer Drug Discovery Through Incorporation of Eneidyne Antibiotic Capabilities with the Antimitotic Drug Combretastatin A-4. He was co-mentored on this project by Dr. Kevin G. Pinney and Christopher Jelinek.

Elizabeth Joy Norton, May 2005, Baylor University, Anti-Cancer Combination Therapy: Synthesis of a Novel Bi-Functional Agent. (co-mentors – first Mallinath Hadimani – until his graduation – then Graciela Miranda).

Carolyn Marie Kienstra, May 2006, Baylor University, Undergraduate Honors Thesis, Merging Vascular Targeting and Bioreductive Approaches to Cancer Therapy and their Potential Implication in the Inhibition of HIF-1 α . (co-mentors – John Hall and Dr. Kevin G. Pinney).

Nick Martinez, May 2006, Baylor University, Undergraduate Honors Thesis, Synthesis and Evaluation of Novel Anti-Mitotic/Vascular Disrupting Agents. (co-mentors – John Hall and Dr. Kevin G. Pinney).

Taylor Wootton, May 2006, Baylor University, Undergraduate Honors Thesis, “Combating the Viable Rim: Novel VDAs Combined with Bioreductive Drugs for Enhanced Tumor Cell Death.” (co-mentors – Madhavi Sriram and Dr. Kevin G. Pinney).

Ann Lilly, May 2007, Baylor University, Undergraduate Honors Thesis, “Modification of Current Vascular Disrupting Agents.” (co-mentors – John J. Hall and Dr. Kevin G. Pinney).

Sarah Rose Roberts, May 2007, Baylor University, Undergraduate Honors Thesis, “Chaotic Abnormalities: Unusual Factors May Provide Hope in the Treatment of Malignant Tumors.” (co-mentors – Benson Nguyen and Dr. Kevin G. Pinney).

Ben Lloyd, December 2008, Baylor University, Undergraduate Honors Thesis, “Design and Synthesis of Molecules Targeting Hypoxia in the Tumor Microenvironment.” (co-mentors – Dr. Rajsekhar Guddneppanavar (postdoc) and Dr. Kevin G. Pinney (faculty)).

Nathan Grohmann, May 2009, Baylor University, Undergraduate Honors Thesis, “Design, Synthesis, and Characterization of Combretastatin and Benzosuberene Analogues for Potential Use as Vascular Disrupting Agents.” (co-mentors – Dr. Madhavi Sriram (postdoc) and Dr. Kevin G. Pinney (faculty)).

Matthew MacDonough, May 2009, Baylor University, Undergraduate Senior Thesis (CHE 4199), "Design, Synthesis, and Biological Evaluation of Benzophenone Analogues Functionalized by Thiosemicarbazone as Inhibitors of Cathepsin L." (co-mentors – Dr. Kishore Kumar Gaddale Devanna (postdoc) and Dr. Kevin G. Pinney (faculty)).

Grace Yoo, December 2009, Baylor University, Undergraduate Senior Thesis (CHE 4199), "Synthesis of Benzophenone Analogs Bearing a Thiosemicarbazone Functional Group: Designed Inhibitors of Cathepsin L." (co-mentors – Dr. Kishore Kumar Gaddale Devanna (postdoc) and Dr. Kevin G. Pinney (faculty)).

GRADUATE DEGREES AWARDED

Amanda Crippen-Harkrider, M.S. December, **1998** Baylor University. Thesis entitled: "Designed Inhibitors of Tubulin Polymerization: Tamoxifen-Based Analogs." (name listed as Amanda R. Harkrider on actual thesis).

Feng Wang, M.S., May, **1999** Baylor University. Thesis entitled: "Stereoselective Synthesis of Conjugated Diene Systems and Design of New Tubulin Polymerization Inhibitors as Antimitotic Agents."

Maria del Pilar Mejia, Ph.D., May, **1999** Baylor University. Dissertation entitled: "Synthesis and Biological Evaluation of Novel Photoaffinity Labeling Reagents and Nitrogen Containing Compounds Modeled After Combretastatin A-4."

Vani P. Mocharla, Ph.D., December, **1999** Baylor University. Dissertation entitled: "Design, Synthesis, and Biological Evaluation of Diverse Small Molecular Frameworks As Tubulin Binding Ligands."

Zhi Chen, M.S., December, **2000** Baylor University. Thesis entitled: "Synthesis of Tubulin Binding Ligands Incorporating Dihydronaphthalene, Indene, and Benzo[b]thiophene Molecular Frameworks and Preparation of Their Corresponding Phosphorous Containing Prodrugs as Tumor Specific Vascular Targeting Agents."

Heather O'Dell, M.A. (Biology, non-thesis), August, **2001** Baylor University. Heather O'Dell successfully defended the oral research presentation portion of her MA degree in Biology on June 21, 2001 through a talk entitled: "The Biological Evaluation of Potential Vascular Targeting Agents." Heather carried out a portion of her research in Dr. Kevin G. Pinney's laboratory and then completed a six month internship in Professor Klaus Edvardson's laboratory in Lund, Sweden working in the area of tumor immunology. The University of Lund provided a stipend for Heather while she was in Sweden for her studies, and Oxigene Inc. provided funds to allow Professor Edvardson to be present at Baylor as a member of Heather's committee. Heather is currently a first year medical student at the University of Texas Medical Branch at Galveston, Texas.

James M. Dorsey, M.S., December, **2001** Baylor University. Thesis entitled: "Synthesis of Serotonin-Selective Reuptake Inhibitors With Novel Side Chains: Designing a Serotonin Reuptake Inhibitor with an Improved Adverse Reaction Profile."

David A. Walsh, M.S., August, **2002** Baylor University. Thesis entitled: "Synthesis and Evaluation of Conjugated One-Ynes (COYs) as a Novel Class of Anti-Cancer Drugs and β -Turn Peptidomimetics as Viable Substitutes for the Alkene Bridge in Combretastatin A-4."

Anupama Ramesh Shirali, Ph.D., August, **2002** Baylor University. Dissertation entitled: "Inhibitors of Tubulin Assembly: Designed Ligands Featuring Benzo[b]thiophene, Dihydronaphthalene and Aroylchromene Molecular Core Structures."

Raymond J. Kessler, M.S., December, **2002**, Baylor University. Thesis entitled: "Synthesis and Evaluation of New Inhibitors of Tubulin Polymerization and Their Corresponding Prodrugs as Potential Vascular Targeting Agents."

Rajendra Prakash Tanpure, Ph.D., December, **2003** Baylor University. Dissertation entitled: "New Synthetic Methodology for the Stereoselective Preparation of Functionalized Conjugated Dienes from Alkynyl Oxirane Precursors: Synthesis and Biological Evaluation of Functionalized Triarylalkenes as Tubulin Binding Agents."

Christopher J. Jelinek, M.S., December **2004**, Baylor University, Thesis entitled: "Discovery and Development of Dihydronaphthalene-Based Vascular Targeting Agents and Combretastatin-Related Analogs."

Mallinath B. Hadimani, Ph.D., December **2004**, Baylor University, Dissertation entitled: "Studies Toward the Discovery of New Classes of Privileged Molecules as Colchicine-Site Binding Ligands for Tubulin: Structure-Based Design, Synthesis, and Bioactivity of Small Ligands Targeted at Tumor Vasculature."

Kimberly A. Brien, M.S., December **2004**, Baylor University, (co-mentored by Dr. Kevin G. Pinney and Dr. Charles M. Garner), Thesis entitled: "Synthesis and Purification of 2,6-bis-hydrazinopyridine: A New Route to Hindered 2,6-bis-pyrazolylpyridines."

Hani Wehbe, Ph.D. (Institute of Biomedical Studies), August **2005**, Baylor University, (co-mentored by Dr. Christopher Kearney), Dissertation entitled: "Towards Enhanced Cancer Chemotherapy: Studies on Drug Design, Synergy, and Drug Target Expression and Resistance with the Combretastatins and Other Chemotherapeutics."

Phyllis Arthasery, Ph.D. (Chemistry), December, **2005**, Baylor University, Dissertation entitled: "Discovery and Development of Unique Small Molecule Chromene Based Ligands and Combretastatin Analogs as Potential Second Generation Vascular Disrupting Agents Towards Cancer Chemotherapy."

Rogelio Siles, Ph.D. (Chemistry), December, **2005**, Dissertation entitled: "Design, Synthesis and Biological Evaluation of New Anti-Cancer Nitrogen-Containing Combretastatins and Novel Cysteine Protease Inhibitors for the Treatment of Chagas Disease."

M. Graciela Miranda, Ph.D. (Chemistry), August, **2006**, Dissertation entitled: "Design, Synthesis and Biological Evaluation of Novel Serotonin Reuptake Inhibitors and Novel Derivatives of a Nitrogen-Containing Combretastatin Analog."

Abhishek Dogra, M.S., December **2006**, Thesis entitled: "Design and Synthesis of Dihydronaphthalene Vascular Disrupting Agents and Indolequinone-Based Bioelectives."

J. Freeland Ackley, M.S., December **2007**, Thesis entitled: "Design, Synthesis and Evaluation of Di-nitrogen Derivatives of Combretastatin and Novel Cruzain Inhibiting Compounds for the Treatment of Chagas Disease"

Madhavi Sriram, Ph.D. (Chemistry), December, **2007**, Dissertation entitled: "Design, Synthesis, Biochemical, and Biological Evaluation of Benzocyclic and Eneidyne Analogs of Combretastatins as Potential Tubulin Binding Ligands in the Treatment of Cancer."

John J. Hall, Ph.D. (Chemistry and Biochemistry), May, **2008**, (co-mentored by Dr. Mary Lynn Trawick), Dissertation entitled: "Inhibitors of Tubulin, Nitric Oxide Synthase, and HIF-1 Alpha; Synthesis, Biological, and Biochemical Evaluation."

RESEARCH FUNDING

RESEARCH GRANT APPLICATIONS

Grantsmanship Summary (1993-2010)

Total Grant Applications Submitted (extramural and intramural): 57
Total Funds Requested: \$8,449,643 (approximately)
(not including NSF REU applications in total since shared by Dept.)

Total Grants Funded (to date) (extramural and intramural): 30
Total Funds Received (to date): \$3,261,770 (approximately)

RESEARCH GRANTS FUNDED (Currently Active)

Oxigene Inc.

Oxigene Inc. – Baylor University // Research Program
(*Bridging Grants to PIs: Kevin G. Pinney and Mary Lynn Trawick*)

Proposal Title: Synthesis of Anticancer Agents with Enhanced Selectivity for the Tumor Microenvironment

Project Dates: November 1, 2009 through December 31, 2010

Proposal Title: Biochemical and Biological Evaluation of Anticancer Agents with Enhanced Selectivity for the Tumor Microenvironment

Project Dates: November 1, 2009 through December 31, 2010

RESEARCH GRANTS FUNDED—(start date not yet finalized)

Cancer Prevention and Research Institute of Texas (CPRIT)

High Impact / High Risk Research Award

Proposal Title: **Investigation of Highly Potent Benzosuberene Analogs as Novel Anticancer Agents**

Application ID: RP100406

PI (Dr. Kevin G. Pinney, Baylor University)

Co-PI (Dr Mary Lynn Trawick, Baylor University)

Subcontract to Dr. Weina Cui (University of Texas Southwestern (UTSW) Medical Center)

Key Collaborators (unpaid): Dr. Ralph Mason (UTSW Medical Center), Dr.

David J. Chaplin and Dr. Bronwyn G. Siim (Oxigene Inc.)

Project Dates: February 1, 2010 through January 31, 2012

(submitted: October 8, 2009)

[Funding announcement: January 20, 2010]

[Official letter received: January 27, 2010]

(Complete Listing of Grants Available Upon Request)

Licensing of Patents

Several patents and patent applications were licensed to Oxigene, Inc. for which a licensing fee was paid to Baylor University.

Active Research Collaborations

Professor George R. Pettit (Arizona State University)

Dr. Ernest Hamel (National Cancer Institute)

Dr. David Chaplin (Oxigene, Inc. Waltham, MA, Oxford UK)

Dr. Bronwyn Siim (Oxigene, Inc. Waltham, MA, Oxford UK)

Dr. Ralph P. Mason (University of Texas Southwestern (UTSW) Medical Center)

Dr. Mary Lynn Trawick (Baylor University)

RESEARCH CONTRACTS AND AGREEMENTS

Secrecy Agreement and Umbrella Contract with OXiGENE Inc., Waltham, MA, South San Francisco, CA, Oxford, UK.

Screening agreement with the National Cancer Institute (NCI), National Institutes of Health (NIH), to evaluate certain of our antimitotic and potential antimitotic agents against the NCI 60 cell line (human cancer cell line) panel, and to evaluate certain of our compounds for possible treatment of AIDS and AIDS related infections.

Collaborative research effort with Professor George R. Pettit and co-workers, The Cancer Research Institute, Arizona State University, Tempe, Arizona, 1994 - present.

Collaborative research effort with Dr. Ernest Hamel and co-workers, National Cancer Institute, National Institutes of Health, Bethesda, Maryland, 1995 - present.

Honored by the selection of DHN-P (Oxi-6197) by the NCI Drug Development Group (June, 2002).

THE CENTER FOR DRUG DISCOVERY

Dr. Pinney is a member and co-founder of The Center for Drug Discovery (Summer 1999-present).

Synergistic Activities

- American Chemical Society — Heart of Texas Section (President, 1996; Secretary/Treasurer, 1997-2000; Alternate Councilor, 2000-present).
- Selection Committee, Baylor Univ. High School Summer Science Research Program
- Served at the invitation of the American Chemical Society (ACS) to be one of ten individuals selected nationally to represent the ACS at the 7th Annual Science and Technology Congressional Visits Day in Washington, D.C., March 5-6, 2002.
- Bioorganic / Natural Products Study Section, *Ad Hoc Member (by invitation)* National Institutes of Health, (fall 2002).

Professional Affiliations/Activities

American Chemical Society (Organic and Medicinal Chemistry Divisions)
American Association for Cancer Research
Peer Reviewer (numerous professional Journals)

Courses Taught at Baylor University

(See Appendix E -- Courses Taught Section-- for a full listing of courses taught at Baylor University)

Service Activities (Baylor University and Community)

(Please see Appendix F for further details)

CHURCH AND COMMUNITY

Member of the First United Methodist Church in Waco (Lake Air and Cobbs)

Recently (since mid-fall 2004) attend worship services and life groups on a fairly regular basis at Antioch Community Church (Waco, TX)

Conducted Chemistry Merit Badge sessions for Boy Scouts (with Chuck Garner), 1999, 2000, 2001, 2002, 2003 and 2004. In 2004 and 2005 Dr. Pinney also served as the “Dean” for Physical Sciences for the Merit Badge College. In 2006 Dr. Pinney only served as the “Dean” for the program (he did not conduct the actual chemistry merit badge training in 2006). In 2007, Dr. Pinney assisted Dr. Garner and Dr. Bellert with the chemistry merit badge training on two Saturdays (November 10th and 17th, 2007). In 2008, Drs. Darrin Bellert, Charles Garner, Riz Klausmeyer, and Kevin G. Pinney along with Kim Brien assisted with various aspects of instruction for the Chemistry Merit Badge that was offered as part of the Boy Scout Merit Badge College held on consecutive Saturdays in October (11th and

18th) on the campus of Baylor University. Special thanks to the Student Affiliates of The American Chemical Society and Drs. Darrin Bellert and Riz Klausmeyer for putting on an outstanding chemistry demonstration show as part of the activities on Saturday October 11th.

Members of the Department of Chemistry and Biochemistry served as counselors/mentors for the Chemistry Merit Badge on Saturday October 31, 2009 as part of Boy Scout Merit Badge College at Baylor University. Dr. Paul Primrose served as the lead person in coordinating the event. Special thanks to Paul as well as to graduate students Dana Horgen, Sara Schlesinger, Karen Lastovica, and Joanna Downey, along with faculty members Dr. Pat Farmer, Dr. Darrin Bellert, and Dr. Kevin G. Pinney for assisting in the event. The Merit Badge College concluded with another session on Saturday November 21, 2009.

Appendix A

Kevin G. Pinney

Department of Chemistry and Biochemistry
Baylor University

Publications

Peer Reviewed Publications (either published or accepted for publication)--- Resulting from work at Baylor University (1993-present) (includes two invited book chapters)

- 34) G. D. Kishore Kumar, Gustavo E. Chavarria, Amanda K. Charlton-Sevcik, Wara M. Arispe, Matthew T. MacDonough, Tracy E. Strecker, Shen-En Chen,^a Bronwyn G. Siim, David J. Chaplin, Mary Lynn Trawick and Kevin G. Pinney, Design, synthesis, and biological evaluation of potent thiosemicarbazone based cathepsin L inhibitors, *Bioorganic and Medicinal Chemistry Letters*, (Submitted: December 1, 2009; Accepted pending minor revisions December 18, 2009). [Revised manuscript submitted December 22, 2009; Fully Accepted for Publication December 23, 2009] (doi: 10.1016/j.bmcl.2009.12.090)
- 33) Rajendra P. Tanpure, Tracy E. Strecker, David J. Chaplin, Bronwyn G. Siim, Mary Lynn Trawick, and Kevin G. Pinney, Regio- and Stereospecific Synthesis of Mono β -D-Glucuronic Acid Derivatives of Combretastatin A-1, *Bioconjugate Chemistry*, (Submitted: January 28, 2010).
- 32) Rajendra P. Tanpure, Amanda R. Harkrider, Tracy E. Strecker, Ernest Hamel, Mary Lynn Trawick, and Kevin G. Pinney, Application of the McMurry Coupling Reaction in the Synthesis of Tri- and Tetra-arylethylene Analogues as Potential Cancer Chemotherapeutic Agents, *Bioorganic and Medicinal Chemistry*, **2009**, 17, 6993-7001.
- 31) Rodney T. Brown, Victor L. Murrell, Austin McMordie, Madhavi Sriram, Kevin G. Pinney, Suman Sharma, and David J. Chaplin, Carbon-14 Radiosynthesis of Combretastatin A-1 (CA1) and its Corresponding Phosphate Prodrug (CA1P), *Journal of Labeled Compounds and Radiopharmaceuticals*, **2009**, 52, 567-570. (DOI: 10.1002/jlcr.1676)
- 30) Anupama Shirali, Madhavi Sriram, John J. Hall, Benson L. Nguyen, Rajsekhar Guddnepanavar, Mallinath B. Hadimani, J. Freeland Ackley, Rogelio Siles, Christopher J. Jelinek, Phyllis Arthasery, Rodney C. Brown, Victor Leon Murrell, Austin McMordie, Suman Sharma, David J. Chaplin, and Kevin G. Pinney, Development of Synthetic Methodology Suitable for the Radiosynthesis of Combretastatin A-1 (CA1) and its Corresponding Prodrug CA1P, *Journal of Natural Products*, **2009**, 72, 414-421.
(Note: This article was invited by the editor (Dr. Douglas Kinghorn) to appear in a special issue of the *Journal of Natural Products* (March 2009) dedicated to honoring our colleague and friend Professor David G. I. Kingston (Virginia

Polytechnic Institute and State University) for his pioneering work on bioactive natural products)

- 29) Madhavi Sriram, John J. Hall, Nathan C. Grohmann, Tracy E. Strecker, Taylor Wootton, Andreas Franken, Mary Lynn Trawick, and Kevin G. Pinney, Design, Synthesis, and Biological Evaluation of Dihydronaphthalene and Benzosuberene Analogs of the Combretastatins as Inhibitors of Tubulin Polymerization in Cancer Chemotherapy, *Bioorganic and Medicinal Chemistry*, **2008**, *16*, 8161-8171.
- 28) John J. Hall, Madhavi Sriram, Tracy E. Strecker, Justin K. Tidmore, Christopher J. Jelinek, G. D. Kishore Kumar, Mallinath B. Hadimani, George R. Pettit, David J. Chaplin, Mary Lynn Trawick, and Kevin G. Pinney, Design, Synthesis, Biochemical, and Biological Evaluation of Nitrogen-Containing Trifluoro Structural Modifications of Combretastatin A-4, *Bioorganic and Medicinal Chemistry Letters*, **2008**, *18*, 5146-5149.
- 27) Rogelio Siles, J. Freeland Ackley, Mallinath B. Hadimani, John J. Hall, Benon Mugabe, Rajsekhar Guddneppanavar, Keith A. Monk, Jean-Charles Chapuis, George R. Pettit, David J. Chaplin, Klaus Edvardsen, Mary Lynn Trawick, Charles M. Garner, and Kevin G. Pinney, Combretastatin Di-Nitrogen Substituted Stilbene Analogs as Tubulin-Binding and Vascular-Disrupting Agents, *Journal of Natural Products*, **2008**, *71*, 313-320.
(Note: This article was invited by the editor (Dr. Douglas Kinghorn) to appear in a special issue of the *Journal of Natural Products* (March 2008) dedicated to honoring our colleague and friend Professor George R. Pettit (Arizona State University) for his pioneering work on bioactive natural products)
- 26) Rogelio Siles, Shen-En Chen, Ming Zhou, Kevin G. Pinney, Mary Lynn Trawick, Design, Synthesis, and Biochemical Evaluation of Novel Cruzain inhibitors with Potential Application in the Treatment of Chagas' Disease, *Bioorganic and Medicinal Chemistry Letters*, **2006**, *16*, 4405-4409.
- 25) Kimberly A. Brien, Charles M. Garner, and Kevin G. Pinney, "Synthesis and Characterization of 2,6-Bis-hydrazinopyridine, and Its Conversion to 2,6-Bis-pyrazolylpyridines." *Tetrahedron*, **2006**, *62*, 3663-3666.
- 24) Keith A. Monk, Rogelio Siles, Mallinath B. Hadimani, Benon E. Mugabe, J. Freeland Ackley, Scott W. Studerus, Klaus Edvardsen, Mary Lynn Trawick, Charles M. Garner, Monte R. Rhodes, George R. Pettit, and Kevin G. Pinney, Design, Synthesis, and Biological Evaluation of Combretastatin Nitrogen-Containing Derivatives as Inhibitors of Tubulin Assembly and Vascular Targeting Agents, *Bioorganic and Medicinal Chemistry*, **2006**, *14*, 3231-3244.
- 23) Maria G. Miranda, Elizabeth J. Norton, Rodney P. Feazell, Kevin K. Klausmeyer and Kevin G. Pinney. "Synthesis and crystal structures of two novel 3,4,5-trimethoxyphenyl derivatives from (Z)-1-[(2', 3'-dinitro-4'-methoxy)-phenyl]-2-[(3'', 4'', 5''-trimethoxy)-phenyl]ethene." *Journal of Chemical Crystallography*, **2006**, *36*, 309-314.

- 22) Hania Wehbe, Christopher M. Kearney, and Kevin G. Pinney, Combretastatin A-4 Resistance in H460 Human Lung Carcinoma Demonstrates Distinctive Alterations in β -Tubulin Isotype Expression, *Anticancer Research*, **2005**, 25 (issue 6B), 3865-3870. (submitted August 8, 2005, accepted September 7, 2005).
- 21) Yezhou Sheng, Jianyi Hua, Kevin G. Pinney, Charles M. Garner, Robert R. Kane, Joseph A. Prezioso, David J. Chaplin, and Klaus Edvardsen, Lund University, Lund, Sweden, Baylor University, Waco, TX, Oxigene, Inc., Watertown, MA, Combretastatin Family Member Oxi4503 Induces Tumor Vascular Collapse Through the Induction of Endothelial Apoptosis, *International Journal of Cancer*, **2004**, 111, 604-610.
- 20) James M. Dorsey, Maria G. Miranda, Nicholas V. Cozzi, and Kevin G. Pinney, Synthesis and Biological Evaluation of 2-(4-Fluorophenoxy)-2-phenyl-ethyl Piperazines as Serotonin-Selective Reuptake Inhibitors with a Potentially Improved Adverse Reaction Profile, *Bioorganic and Medicinal Chemistry*, **2004**, Volume 12, Issue 6, pp 1483-1491, Special Issue on Synthetic Ion Channels, edited by U. Koert.
- 19) Keith A. Monk, Rogelio Siles, Kevin G. Pinney, and Charles M. Garner, "Synthesis of 4-Methoxy-3,5-dinitrobenzaldehyde: A Correction to Supposed Tele Nucleophilic Aromatic Substitution.", *Tetrahedron Letters*, **2003**, 44, 3759-3761.
- 18) Jianyi Hua, Yezhou Sheng, Kevin G. Pinney, Charles M. Garner, Robert R. Kane, Joseph A. Prezioso, George R. Pettit, David J. Chaplin, and Klaus Edvardsen, Lund University, Lund, Sweden, Baylor University, Waco, TX, Oxigene, Inc., Watertown, MA, OXi 4503 A Novel Vascular Targeting Agent: Effects on Bloodflow and Anti-Tumor Activity in Comparison to Combretastatin A-4 Phosphate, *Anticancer Research*, **2003**, Vol. 23, 1433-1440.
- 17) Mallinath B. Hadimani, Jianyi Hua, M. Devan Jonklaas, Raymond J. Kessler, Yezhou Sheng, Adrian Olivares, Rajendra Tanpure, Aimee Weiser, Jianxing Zhang, Klaus Edvardsen, Robert R. Kane, Kevin G. Pinney, Synthesis, *in vitro*, and *in vivo* Evaluation of Phosphate Ester Derivatives of Combretastatin A-4, *Bioorganic Medicinal Chemistry Letters*, **2003**, 13, 1505-1508.
- 16) Anjan Ghatak, James M. Dorsey, Charles M. Garner and Kevin G. Pinney, Synthesis of Methoxy and Hydroxy Containing Tetralones: Versatile Intermediates for the Preparation of Biologically Relevant Molecules, *Tetrahedron Letters*, **2003**, 44, 4145-4148.
- 15) Mallinath Hadimani, Raymond J. Kessler, Jason A. Kautz, Anjan Ghatak, Anupama R. Shirali, Heather O'Dell, Charles M. Garner, and Kevin G. Pinney, 2-(3-*tert*-Butyldimethylsilyloxy-4-methoxyphenyl)-6-methoxy-3-(3,4,5-trimethoxybenzoyl)indole, *Acta Cryst., Sect. C*, **2002**, C58, 330-332.

- 14) Z. Chen, V. P. Mocharla, J. M. Farmer, G. R. Pettit, E. Hamel, and K. G. Pinney, Preparation of New Anti-Tubulin Ligands Through a Dual-Mode, Addition-Elimination Reaction to a Bromo-Substituted α,β -Unsaturated Sulfoxide, *J. Org. Chem.*, **2000**, 65, 8811-8815.
- 13) K. G. Pinney, M. P. Mejia, V. M. Villalobos, B. E. Rosenquist, G. R. Pettit, P. Verdier-Pinard, and E. Hamel, Synthesis and Biological Evaluation of Aryl Azide Derivatives of Combretastatin A-4 as Molecular Probes for Tubulin, *Bioorganic and Medicinal Chemistry*, **2000**, 8, 2417-2425.
- 12) K. G. Pinney, K. M. Dingeman, A. D. Bounds, V. P. Mocharla, G. R. Pettit, Ruoli Bai, and E. Hamel, A New Anti-Tubulin Agent Containing the Benzo[b]thiophene Ring System, *Bioorganic and Medicinal Chemistry Letters*, **1999**, 9, 1081-1086.
- 11) D. F. Mullica, K. G. Pinney, Pilar Mejia, Brent E. Rosenquist, and E. L. Sappenfield, (*E*)-1-(3-methoxy-4-nitrophenyl)-2-(3,4,5-trimethoxyphenyl)ethene, *Acta Cryst., Sect. C*, **1998**, C54, 695-697.
- 10) D. F. Mullica, K. G. Pinney, V. P. Mocharla, K. M. Dingeman, Ashley D. Bounds, and E. L. Sappenfield, Characterization and Structural Analyses of Trimethoxy and Triethoxybenzo[b]thiophene, *J. Chem. Cryst.*, **1998**, 28, 289-295.
- 9) D. F. Mullica, K. G. Pinney, K. M. Dingeman, Ashley D. Bounds, and E. L. Sappenfield, X-ray Structures of Two Methoxybenzo[b]thiophenes, *J. Chem. Cryst.*, **1996**, 26, 801-806.

Publications (continued)

Peer Reviewed Book Chapters (resulting during time at Baylor University)-- (either published or accepted for publication)

- I) Kevin G. Pinney, Christopher Jelinek, Klaus Edvardsen, David J. Chaplin, and George R. Pettit, Chapter 3 entitled: The Discovery and Development of the Combretastatins. pages 23-46, Published in *Antitumor Agents from Natural Products*, **2005**, edited by David Kingston, David Newman, and Gordon Cragg, CRC Press, Taylor and Francis Group, Boca Raton, Florida.
- II) Kevin G. Pinney, Molecular Recognition of the Colchicine Binding Site as a Design Paradigm for the Discovery and Development of Vascular Disrupting Agents, chapter 6, pages 95-121, in "Vascular-targeted Therapies in Oncology" Dietmar W. Siemann, editor, John Wiley & Sons, London, UK, **2006**.

Non-Peer Reviewed Book Chapters (resulting during time at Baylor University)-- (either published or accepted for publication)

- III) George R. Pettit and Kevin G. Pinney, "The Combretastatins" included in the Chapter entitled: Major Milestones, in the book entitled: *American Society of Pharmacognosy History*, edited by Gordon Cragg, (**2009** anticipated copy

availability).

Publications (continued)

Peer Reviewed Publications Resulting from work prior to beginning career at Baylor University (1990-1993) & total pre-Baylor publications)

- 8) J. A. Marshall, and K. G. Pinney, Stereoselective Synthesis of 2,5-Dihydrofurans by Sequential S_N2' Cleavage of Alkynyloxiranes and Ag^+ -Catalyzed Cyclization of the Allenylcarbinol Products, *J. Org. Chem.*, **1993**, 58, 7180-7184.
- 7) P. R. Kym, G. M. Anstead, K. G. Pinney, S. R. Wilson, J. A. Katzenellenbogen, Structural and Computational Modeling Studies on 3-Aroyl-2-arylbenzo[b]thiophene Estrogen Receptor Ligands: LY117018 and Aryl Azide Photoaffinity Labeling Analogs; Investigation of Conformational Preferences, Differential Photoreactivity, and Preferential Modes of Binding, *J. Med. Chem.*, **1993**, 36, 3910-3922.
- 6) K. G. Pinney, K. E. Carlson, and J. A. Katzenellenbogen, Non-Steroidal Estrogens Bearing Acyl Azide Functions: Potential Electrophilic and Photoaffinity Labeling Agents for the Estrogen Receptor, *Steroids*, **1992**, 57, 222-232.
- 5) K. G. Pinney, and J. A. Katzenellenbogen, Synthesis of a Tetrafluoro-Substituted Aryl Azide and Its Protio Analogue as Photoaffinity Labeling Reagents for the Estrogen Receptor, *J. Org. Chem.*, **1991**, 56, 3125-3133.
- 4) K. G. Pinney, K. E. Carlson, B. S. Katzenellenbogen, and J. A. Katzenellenbogen, Efficient and Selective Photoaffinity Labeling of the Estrogen Receptor Using Two Nonsteroidal Ligands That Embody Aryl Azide or Tetrafluoroaryl Azide Photoreactive Functions, *Biochemistry*, **1991**, 30, 2421-2431.
- 3) G. M. Anstead, C. S. Peterson, K. G. Pinney, S. R. Wilson, J. A. Katzenellenbogen, Torsionally and Hydrophobically Modified 2,3-Diarylindenes as Estrogen Receptor Ligands, *J. Med. Chem.*, **1990**, 33, 2726-2734.
- 2) M. G. Pomper, K. G. Pinney, K. E. Carlson, C. J. Mathias, M. J. Welch, and J. A. Katzenellenbogen, Target Tissue Uptake Selectivity of Three Fluorine-Substituted Progestins: Potential Imaging Agents For Receptor-Positive Breast Tumors, *Nucl. Med. Biol. (Int. J. Radiat. Appl. Instrum., Part B)*, **1990**, 17, 309-319.
- 1) K. G. Pinney, K. E. Carlson, and J. A. Katzenellenbogen, [3H]DU41165: A High Affinity Ligand and Novel Photoaffinity Labeling Reagent for the Progesterone Receptor, *J. Steroid Biochem.*, **1990**, 35(2), 179-189.

Publications (continued)

Non-refereed Publications

- D) K. G. Pinney, Ernest Guenther Award in the Chemistry of Natural Products, and Aromatics, Hererocycles, and Porphyrins, (Meeting Report, 215th American Chemical Society Meeting), *Investigational Drugs, Weekly Highlights*, April 1998, Current Drugs Ltd, 23-27.
- C) K. G. Pinney, Ernest Guenther Award in the Chemistry of Natural Products, and Aromatics, Hererocycles, and Porphyrins, (Meeting Report, 215th American Chemical Society Meeting), *IDrugs*, 1998, 1 (1), 26-27, and 32-34.
- B) K. G. Pinney, Design, Synthesis, and Biochemical Evaluation of Novel Photoaffinity Labeling Reagents for the Estrogen and Progesterone Receptors, University of Illinois, *Diss. Abstr. Int. B*, 1991, 51, 215 pp
- A) K. G. Pinney, An Experimental Study of Column Chromatography of Polymer Latexes, Thesis for the Degree of Bachelor of Science in Chemical Engineering, University of Illinois, Urbana, Illinois, 1985.

Educational Publications with W. H. Freeman & Company

Dr. Charles M. Garner and Dr. Kevin G. Pinney authored a comprehensive undergraduate organic chemistry testbank which was published in both a bound and computer format in the fall of 1998. The testbank contains over 600 questions and the electronic version allows the instructor to rapidly review and select questions in order to quickly prepare high-quality classroom examinations. In addition, Drs. Garner and Pinney prepared sample test questions and answers for student tutorial practice which was published in a CD-ROM format. These questions are interactive in the sense that when a student chooses an incorrect answer they are given helpful hints and suggestions to guide them toward the correct response. Both of these materials accompany a new addition (Third Edition) of the popular undergraduate organic chemistry textbook entitled "Organic Chemistry" written by K.P.C. Vollhardt and Neil Schore. The publisher is W. H. Freeman and Company.

Publication (Educational Teaching)

---Kevin G. Pinney, A Walk in the Park of Scientific Excellence, *Collegium*, College of Arts & Sciences, Baylor University, 2002 (article written by invitation from Dean Wallace Daniel).

Publication of Educational Materials

Dr. Charles M. Garner and Dr. Kevin G. Pinney (along with invaluable assistance from Tamara Grisales) authored (in 2002) a comprehensive undergraduate organic chemistry test-bank which accompanies a new addition (Fourth Edition) of the popular undergraduate organic chemistry textbook entitled "Organic Chemistry" written by K.P.C. Vollhardt and Neil Schore. The publisher is W. H. Freeman and Company.

Appendix B (Kevin G. Pinney, Baylor University)

Patents Issued and Patents Pending

A large number of patent applications (both US and International) have been filed – all directly resulting from work carried out at Baylor University. To date, at least sixteen (16) patents (US and/or International) have issued, and over twenty (20) applications are either still pending, or allowed (and will issue soon). Some of these applications are the same (just submitted in separate countries) --- collectively, the entire patent portfolio represents approximately fifteen (15) separate and distinct patent applications.

- 1) Kevin G. Pinney, Anti-Mitotic Agents Which Inhibit Tubulin Polymerization Baylor University, *Application for United States Letters Patent*, Filed **March 6, 1997**. Patent Number: 5,886,025. Issued, **March 23, 1999**.

Issued

- 2) Kevin G. Pinney, Pilar Mejia, Vani P. Mocharla, Anupama Shirali, G. R. Pettit, Anti-Mitotic Agents Which Inhibit Tubulin Polymerization, *U.S. Patent Application* Serial No. 06,162,930 (based on PCT/US98/04380), Issued December 19, 2000.

Issued

- 3) Kevin G. Pinney, Maria del Pilar Mejia, Vani P. Mocharla, Anupama Shirali, George R. Pettit, Anti-Mitotic Agents Which Inhibit Tubulin Polymerization, *Australian Patent Application* (No. 732917) based on PCT/US98/04380, Issued **August 16, 2001**.

Issued

- 4) Kevin G. Pinney, Pilar Mejia, Vani P. Mocharla, Anupama Shirali, G. R. Pettit, Anti-Mitotic Agents Which Inhibit Tubulin Polymerization, *U.S. Patent* (Serial No. US 6,350,777) based on PCT/US98/04380. Issued **February 26, 2002**.

Issued

- 5) Kevin G. Pinney, Maria del Pilar Mejia, Vani P. Mocharla, Anupama Shirali, George R. Pettit, Anti-Mitotic Agents Which Inhibit Tubulin Polymerization, *Australian Patent Application* (No. 765418) Issued **January 15, 2004**.

Issued

- 6) Kevin G. Pinney, Feng Wang, and Mallinath Hadimani, Indole-Containing and Combreastatin-Related Anti-Mitotic and Anti-Tubulin Polymerization Agents, United States Patent (US 6,849,656 B1), Issued **February 1, 2005**.

Issued

- 7) Kevin G. Pinney, Feng Wang, and Mallinath Hadimani, Indole-Containing and Combreastatin-Related Anti-Mitotic and Anti-Tubulin Polymerization Agents, Australian Patent (No. ?), Issued **February 17, 2005**.

Issued

- 8) Kevin G. Pinney, Vani P. Mocharla, Zhi Chen, Charles M. Garner, Anjan Ghatak, Mallinath Hadimani, Jimmy Kessler, and Jimmy Dorsey, Tubulin Binding Ligands and Corresponding Prodrug Constructs, *U.S. Patent Application*, filed on **March 12, 2001**. Patent Granted (Patent No. 6,593,374) **July 15, 2003**.

Issued

- 9) Kevin G. Pinney, Vani P. Mocharla, Zhi Chen, Charles M. Garner, Anjan Ghatak, and Jimmy Dorsey, Tubulin Binding Ligands and Corresponding Prodrug Constructs, *U.S. Patent Application*, filed on **March 12, 2001**. Issued (US Patent 6,593,374) **July 15, 2003**.

Issued

- 10) David J. Chaplin, Charles Manly Garner III, Robert Ronald Kane, Kevin G. Pinney, Joseph Anthony Prezioso, and Klaus Edvardsen, Functionalized Stilbene Derivatives as Improved Vascular Targeting Agents, United States Patent (US 6,919,324 B2), Issued **July 19, 2005**.

Issued

- 11) Ronald W. Pero, David Sherris, Kevin G. Pinney, Vani P. Mocharla, Zhi Chen, Compositions and Methods for Use in Targeting Vascular Destruction, *U.S. Patent Application* (Serial No. 10/218,833), Filed **August 14, 2002**. United States Patent (US 6,956,054), Issued **October 18, 2005**.

Issued

- 12) Kevin G. Pinney, Vani P. Mocharla, Zhi Chen, Ghatak, legal representative; Usha R., Mallinath Hadimani, Jimmy Kessler, James M. Dorsey, Klaus Edvardsen, David J. Chaplin, and Joseph Prezioso, Ghatak, deceased; Anjan "Tubulin Binding Agents and Corresponding Prodrug Constructs" (US 7,001,926 B2), issued **February 21, 2006**.

Issued

- 13) Kevin G. Pinney, Vani P. Mocharla, Zhi Chen, Charles M. Garner, Mallinath Hadimani, Raymond Kessler, James M. Dorsey, Klaus Edvardsen, David J. Chaplin, and Joseph Prezioso, Anjan Ghatak (Usha Ghatak), "Tubulin Binding Agents and Corresponding Prodrug Constructs" (US 7,091,240), issued **August 15, 2006**.

Issued

- 14) Chaplin, David J.; Garner III, Charles Manly; Kane, Robert; Pinney, Kevin G.; Prezioso, Joseph Anthony; Edvardsen, Klaus "Functionalized Stilbene Derivatives as Improved Vascular Targeting Agents" (US 7,384,925), issued **June 10, 2008**.

Issued

- 15) Kevin G. Pinney and Madhavi Sriram, "Combretastatin Analogs with

Issued Tubulin Binding Activity” (US 7,429,681 B2), issued **September 30, 2008**.

- 16) Kevin G. Pinney, Phyllis Arthasery, Anupama Shirali, Klaus Edvardsen, and David J. Chaplin, “Chromene-containing compounds with anti-tubulin and vascular targeting activity” (US 7,456,214), issued **November 25, 2008**.

Issued